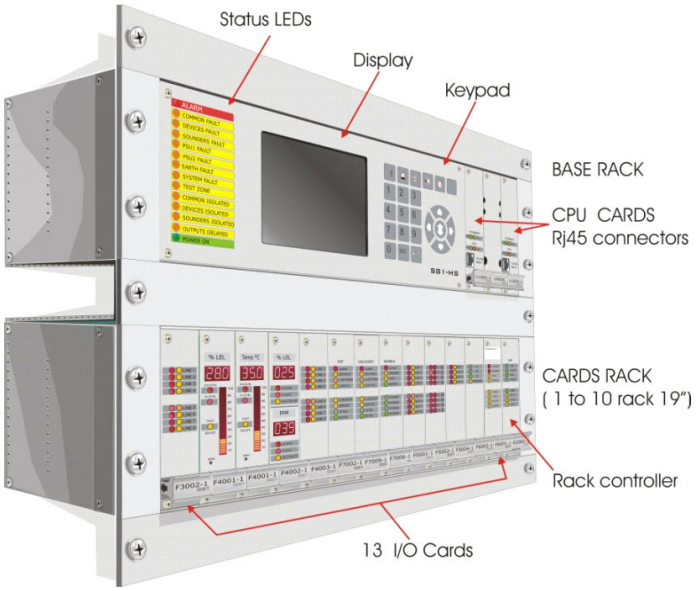
H-S81-HS

Panel

Description of the S81-HS Panel

The H-S81-HS panel is an advanced technological product designed to protect industrial plants and equipment for safety applications. It is characterized by simple configuration and programming, excellent reliability, and system diagnostics.
The S81-HS is similar to a "safety" PLC and it is also configurable and programmable to perform integrated fire detection and fire extinguishing control, gas detection, and technological control functions, in compliance with application and product regulations.
It can interact with other panels of the same type, as well as with supervisory and SCADA systems, through both proprietary and standard protocols, such as Ethernet TCP/IP, Modbus, or OPC server.



Main Characteristics

- PC configurable with the program ProS81
- Can be managed through a supervisory program
- Can be networked with other panels
- 19" rack modular construction
- From 2 to 10 racks with 13 card slots
- Front plug-in/out cards
- Two CPU's, in hot back-up to one another
- Cards interconnected on redundant bus loop
- Cyclical testing, with automatic simulation of card inputs and outputs
- Automatic monitoring of card and CPU fault
- Automatic and safe disabling of malfunctioning cards
- Hot-swap of cards and CPUs
- High immunity to electromagnetic disturbances.

Reference Standards and Certifications

- IMQ-certified to EN 54-2 and EN 54-4 for fire detection systems
- CPD-certified to EN 12094-1 for fire extinguishing systems
- SIL2 and SIL3 certified to IEC61508 Functional Safety (SIL)
- Gost R and Gost K certified
- UL listed
- AS certified (Australian Standard)
- Certification EU-MED (Marine certification) in progress

Mechanical Construction

The panel, which has a modular structure, is mainly composed of 19"-3HE anodized aluminum racks contained in a cabinet with a swivel rack chassis and an acrylic glass door.
The panel can be composed from a minimum of 2 racks to a maximum of 10 racks according to the application's requirements.
The first rack (base rack) is always necessary and includes one or two CPU's, the display for the operator interface and the keyboard. Any further rack is used to install cards, whose type and quantity depend on specific application requirements.
Each card is terminated either on a DIN rail-mounted electronic-type terminal block (for 4mm2 conductors), via a flat cable, or on an electromechanical-type marshaling terminal block, via a cable with plug connector.
In addition to versions tailored to meet specific customer requirements, three standard configurations are available, for the European market, in accordance with the CPD certifications:

H-S81-HS/1R: Base rack + 1 card rack, in wall-mounting cabinet (L=600 H=700 D=400mm)
H-S81-HS/2: Base rack + 2 card racks, in wall-mounting cabinet (L=600 H=1100 D=400mm)
H-S81-HS/10R: Base rack + up to 10 card racks, in self-standing cabinet (L=800 H=2100 D=800mm).

Configuration

One of the most important characteristics of the S81-HS panel is the user-friendly windows-compatible configuration program ProS81, which is simple to use and makes it possible to suit the system to specific application requirements and modifications. With the ProS81 program, it is possible to configure logic association and, or, n of n, and time based, to use on one panel or more connected panels.

Technical Specification Summary:

Mechanical Modularity	
Structure	Self-standing cabinet, with swivel 19"-3H rack chassis and door
Front	Acrylic glass door, lockable
Expansion	By addition of racks, each having 13 card slots
Terminal blocks	On DIN rail
Card installation	Font plug-in
Card replacement	Hot swap (no need for either panel switching off, or intervention on connections and wiring)
Field connection	Through terminal block cards and flat cables (monitored connection)
Card connection	Through serial line on redundant bus managed by FPGA
Direct Control and Interfacing	
4-20 mA inputs	On cards and modules for 4-20 mA inputs
Addressable devices	Total 130 loops, 127 addresses per loop
Detection cards	Specific cards, with self-configuration capability (also to existing detection lines)
Technological controls	Addressable cards and modules on BUS
Commands	Addressable cards and modules on BUS
Automatic fire extinguishing control	Special native cards for this function can control up to 64 extinguishing zones certified to EN 12094-1
Extinguishing controls (directional valves)	Special native cards for this function, with no logic and control limitation
Repeaters	Repeaters with alphanumeric display on addressable bus
Remote control	From PC with IRIDE software and OPC server
Communication protocol	TCP/IP on Ethernet, with communication control
Multi-panel architecture	Ethernet and Modbus, copper or optic fibre, redundant
External SCADA interfacing	Standard MODBUS RTU protocol; proprietary protocol on Ethernet
Electronic Modularity	
Display (LCD)	Liquid crystal, retro illuminated, graphic type, 320 x 240 pixel
Main CPU S81-U1002-1 (One or two CPUs)	Hitachi 32-bit CPU with internal operating system and integrated watch dog 4 MB Data Memory SRAM + 2 MB Program Memory on Flash Eprom 2 RS232 ports + 1 Ethernet 10/100 base TX port per CPU.
Cards on base rack	- I/O base card and interface S81-T8004 - Display + keyboard and signaling S81-U1006-1 - Base back Plane S81-E2003
Necessary cards on expansion racks and connectors	- S81-E2001-1 Back plane rack (flat cable) - S81-E2001-2 Back plane rack (cable plug) - S81-E2002 Rack controller and internal bus - S81-T8001/T8003 Terminal block module; Cable plug S81-CTT/R - S81-T8006/T8007/T8008 Relay cards
Additional cards on expansion racks (max 9 racks)	- S81-F3002 Eight inputs, conventional detection - S81-F4001 One 4-20 mA analog input - S81-F4002 Two analog inputs - S81-F4003 Eight analog inputs - S81-F5001 Eight 500 mA monitored outputs - S81-F5002 Sixteen open collector outputs - S81-F5003 Eight polarity reversal-monitored outputs - S81-F5004 Four monitored outputs - S81-F6001 Fire extinguishing control (EDC), certified to EN12094-1 - S81-F6002 Special logic control - S81-F7001 Addressable analog loop control DCP (UL) - S81-F7002 Analog addressable loop control, ESP protocol - S81-F7009 Analog addressable loop control, Apollo protocol - S81-F7006 MODBUS RTU card - S81-F7008 Cylinder weighting card with MOD-BIL modules - S81-F7010 Addressable bus control, System Sensor protocol
Power supply	
Feeder	There is the availability of several sizes of feeders 2.5, 4 or 20A and can be paralleled. Certified to EN 54-4, with fault indication in case of main supply failure, battery charger or battery fault, overheating
Battery charger	Can be coupled with feeder Battery charge and aging status monitoring, through microcontroller-processed algorithm; thermal compensation during battery charging; testing button; battery capacity ≤ 110 Ah.

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